

Claims

1 A method for screening of compounds for drug candidates comprising:

(a) providing a solid porous support having first and second surfaces and at least one area with a plurality of through-going channels; wherein said solid porous support comprises compounds within predefined regions of the said support; wherein said compounds within the porous structure are stored in dried condition, wherein said dried condition is obtained after a drying treatment by slow evaporation, vacuum drying or by blowing air or inert gas above and below said solid support;

(b) providing a liquid sample comprising at least one molecular target;

(c) mixing said dried compounds of step (a) with said liquid sample of step (b) by flow of the sample through said predefined regions of the solid support through the said through-going channels;

(d) screening said compounds for drug candidates; said screening is by monitoring in an assay a compound-target interaction by measurement of a signal, said signal indicating interaction between a compound and a molecular target;

(e) optionally screening for a compound having a putative effect on a drug candidate identified in step (d).

2. The method according to claim 1, wherein said compounds are chosen from the group comprising chemical compounds, natural compounds, oligo-peptide-based compounds, peptide derivatives, biologically active compounds, and any potential drug candidate compound.

3. The method according to any of claims 1 or 2, wherein said compounds are drugs selected from a chemical or natural drug candidate library.

4. The method according to any of claims 1 to 3, wherein compounds are chosen from the group comprising enzymes, enzyme substrates, inducer molecules, enhancer molecules, inhibitor molecules, chaperone proteins, transcription factors, differentiation-inducing agents, secondary metabolites, toxins, glycolipids, carbohydrates, antibiotics, mutagens, drugs, oligopeptides, nucleic acids, agonists, antagonists, aptamers, monoclonal and polyclonal antibodies, and any combination thereof.

5. The method according to any of claims 1 to 4, wherein deposition of the compounds is from above the support by a means chosen from the group comprising a delivery mask, a microfluidics device, a high precision x-y-z micro-pipettor, inkjet printer, acoustic liquid handling, and manual handling.

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6. The method according to any of the claims 1 to 5, wherein said compound is immobilized by covalent attachment or adsorptive attachment to said porous structure.

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7. The method according to any of the claims 1 to 6, wherein said molecular target is chosen from the group comprising enzymes, enzyme substrates, oligo-peptides, proteins, RNA, receptors, ion-channels, lipids, carbohydrates, aptamers, ribozymes, nucleic acids, monoclonal and polyclonal antibodies, antibody fragments, and any derivatives and analogues thereof.

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8. The method according to any of claims 1 to 7, wherein said molecular target is a labelled molecular target.

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9. The method according to any of claims 1 to 8, wherein said identifying of the compound-molecular target interaction is by a method chosen from the group comprising luminescence microscopy, regular light microscopy, electron microscopy, UV/VIS absorbance, microcalorimetry, and radiometry.

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10. The method according to any of claims 1 to 9, wherein said luminescence is fluorescence, time-resolved fluorescence, lifetime fluorescence, or electrochemiluminescence.

11. The method according to any of claims 1 to 10, wherein said solid support is a flow-through solid support.

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12. The method according to any of claims 1 to 11, wherein said solid support is a metal oxide solid support.

13. The method according to claim 12, wherein said metal oxide solid support is an aluminium oxide solid support.

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14. The method according to any of claims 1 to 13, wherein said assaying is performed in real-time.

15. The method according to any of claims 1 to 14, wherein said assaying is conducted by end-point analysis.

16. The method according to any of claims 1 to 15, wherein detector molecules are present within the pores of the solid support prior to initiating an assay.

17. A solid porous support, characterized in that within its porous structure an array of compounds is provided, said compounds are stored in dried or lyophilised condition, wherein said dried condition is obtained after a drying treatment by slow evaporation, vacuum drying or by blowing air or inert gas above and below said solid support.

18. The solid porous support according to claim 17, wherein a supply chamber is further provided comprising an array of compounds within at least one compartment, said compounds are in a dried or liquid state.

19. A method for the manufacture of a compound-storage solid support comprising the steps of

(a) providing a solid porous support having first and second surfaces and at least one area with a plurality of through-going channels;

(b) providing compounds on said first or second surface of said solid porous support, said compound are in liquid condition; and allowed to enter the porous structure within predefined regions of the said support;

(c) applying a drying treatment so as to bring said compounds in a dried or lyophilised condition, wherein said dried condition is obtained after a drying treatment by slow evaporation, vacuum drying or by blowing air or inert gas above and below said solid support; and

(d) storing said compound in dried condition within the porous structure of the solid support.

20. The method according to claim 19, wherein said drying treatment is by slow evaporation, vacuum drying, or by blowing air or inert gas above and below said solid support.

21. The method according to claims 19 or 20, wherein said compounds are chosen from the group comprising chemical compounds, natural compounds, oligo-peptide-based compounds, biologically active compounds, and any potential drug candidate compound.
22. The method according to any of claims 19 to 21, wherein said compounds are drugs selected from a chemical or natural drug candidate library.
23. The method according to any of claims 19 to 22, wherein said compounds are chosen from the group comprising enzymes, enzyme substrates, inducer molecules, enhancer molecules, inhibitor molecules, chaperone proteins, transcription factors, differentiation-inducing agents, secondary metabolites, toxins, glycolipids, carbohydrates, antibiotics, mutagens, drugs, oligopeptides, nucleic acids, agonists, antagonists, aptamers, monoclonal and polyclonal antibodies, and any combination thereof.
24. The method according to any of claims 19 to 23, wherein said compounds are provided by deposition from above the support by a means chosen from the group comprising a delivery mask, a microfluidics device, a high precision x-y-z micro-pipettor, inkjet printer, acoustic liquid handling, and manual handling.
25. The method according to any of claims 19 to 24, wherein said compounds are immobilized within the porous structure of the solid support by covalent attachment or by adsorptive attachment.
26. The method according to any of claims 19 to 25, wherein said solid support is a flow-through solid support.
27. The method according to any of claims 19 to 26, wherein said solid support is a metal oxide solid support.
28. The method according to claims 27, wherein said solid support is an aluminium oxide solid support.

29. A kit for performing a method according to any of claims 1 to 16, comprising a solid porous support according to any of claims 17 or 18.

5 30. Use of a method according to any of claims 1 to 16, for screening compounds in the process of drug discovery.

31. Use of a solid porous support according to claim 17 or 18 in a method for screening drug candidates according to any of claims 1 to 16.